mercruiser STERN DRIVES & INBOARDS

service bulletin

MCM 300 TEMPEST MR/TRS SPECIFICATIONS

NUMBER: 85-24

CIRCULATE TO:
SERVICE MANAGER ☐
PARTS MANAGER ☐
MECHANICS ☐
"Place In a Service Bulletin Binder"

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B. Electrical Specifications
C. Carburetor Specifications
D. Internal Engine Specifications
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A. TUNE-UP SPECIFICATIONS

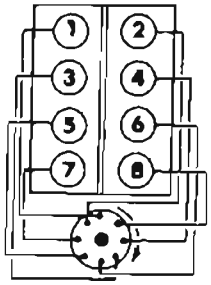
Horsepower (Kilowatts)	300 (224)
Cu. In. Displacement	350 CID (5.7 Litres)
No. of Cyls.	V-8
Bore	4.00" (101.6mm)
Stroke	3.48" (88.39mm)
Compression Ratio	9.0:1
Compression Pressure	150 PSI (1035 kPa)
Ignition	Thunderbolt IV (HEI)
Fuel Required	88 Octane Minimum (Average Octane Rating)
Spark Plug Type	AC-MR43T or Champion RV8C
Plug Gap	.032" (.8mm)
Timing @ Idle RPM	8° BTDC
Max. RPM at W.O.T.	4800-5200
Idle RPM (In Gear)	750-800
Firing Order	1-8-4-3-6-5-7-2
Fuel Pump Pressure	3-7 PSI (21-48 kPa)
Electrical System	12-Volt Neg. Ground
Battery Rating	Min. 350 Amps - Cold Cranking Amperage

Oil Pressure @ 2000 RPM	30-60 PSI (207-414 kPa)
Oil Pan Capacity w/Filter (Approx.)*	6-1/2 Qts. (6 Litres)
Alternator Rating	55 Amperes
Thermostat	143° F (62° C)
Stern Drive Unit Oil Capacity (MR) (Approx.)	32 Oz. (.95 Litre)
Stern Drive Unit Gear Ratio (MR)	1.5:1
Transmission Oil Capacity (TRS) (Approx.)*	2.1 Qts. (2 Litres)
Stern Drive Unit Oil Capacity (TRS) (Approx.)	3 Qts. (2.8 Litres)
Stern Drive Unit Gear Ratio (TRS)	1.5:1

* *Approximately.*
ALWAYS use dipstick to determine exact quantity of oil required.

FRONT

Left Hand Rotation Engine Firing Order



Firing Order
1-8-4-3-6-5-7-2

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B. ELECTRICAL SPECIFICATIONS

IGNITION SPECIFICATIONS

Spark Plug Type	Refer to "Tune-Up Specifications"
Spark Plug Gap	
Timing	

Coil	Coil Part No. 392-7803A4
Coil Primary Resistance (Ohms) Minimum	.60
Coil Primary Resistance (Ohms) Maximum	.80
Coil Secondary Resistance (Ohms)	9,400-11,700

STARTER MOTOR SPECIFICATIONS

Identification Number	No Load Test					Brush Spring Tension
	Volts	Min. Amps	Max. Amps	Min. RPM	Max. RPM	
50-99417A2 (Delco-Remy) 1998317	10.6	70	120	5,400	10,800	56-105 Oz. (1588-2976 g)

C. CARBURETOR SPECIFICATIONS

All Measurements are ± 1/64" (.4mm)

Make (Model)	Rochester (4MV)
Part No. Mercury (Rochester)	1374-7498A6 (17059280)
Float Level	15/64" (5.9mm)
Pump Rod Hole Location	Inner
Accelerator Pump (NOTE 1)	23/64" (9.1mm)
Air Valve Dash Pot (Air Valve Rod)	.025" (.64mm)
Vacuum Break	.080" [5/64" (2.0mm)]
Air Valve Spring Wind Up	1/2 Turn (70-90 g)
Choke Coil Rod (NOTE 2)	Top of Rod Even with Bottom of Hole

Main Jet	.068"
Metering Rod (Primary)	.041"
Metering Rod (Secondary)	CH
Idle Mixture Screw, Preliminary Setting	2-3 Turns

NOTES:

1) *Accelerator Pump Measurement Taken From Flame Arrestor Mounting Surface to Pump Stem With Throttle Plates Fully Closed.*

2) *Choke Coil Rod Adjustment Performed With Choke Valve Completely Closed, Choke Rod In Bottom of Choke Lever Slot and Choke Coil Rod Pushed Down to End of Travel.*

D. INTERNAL ENGINE SPECIFICATIONS

Cylinder Bore:

Diameter			3.9995"-4.0025" (101.5873-101.6635mm)
Out of Round	Production		.001" (.025mm) Max.
	Service		.002" (.051mm) Max.
Taper	Production	Thrust Side	.0005" (.0127mm) Max.
		Relief Side	.001" (.025mm) Max.
	Service		.001" (.025mm) Max.

Piston:

Clearance	Production	.0007" - .0017" (.0178-.0432mm)
	Service	.0027" (.0686mm) Max.

Piston Ring: (1) HI Production Limit

Compression	Groove Side Clearance	Production	Top	.0012" - .0032" (.0305 - .0813mm)
			2nd	.0012" - .0032" (.0305 - .0813mm)
		Service		(1) +.001" (.025mm)
	Gap	Production	Top	.010" - .020" (.254 - .508mm)
			2nd	.010" - .025" (.254 - .635mm)
		Service		(1) +.010" (.254mm)
Oil	Groove Side Clearance	Production		.002" - .007" (.051 - .178mm)
		Service		(1) +.001" (.025mm)
	Gap	Production		.015" - .055" (.381 - 1.397mm)
		Service		(1) +.010" (.254mm)

Piston Pin:

Diameter		.9270" - .9273" (23.5458 - 23.5534mm)
Clearance	Production	.00025" - .00035" (.00635 - .00889mm)
	Service	.001" (.025mm) Max.
Fit in Rod		.0008" - .0016" (.0203 - .0406mm) Interference

Crankshaft:

Main Journal	Diameter	No. 1	2.4484" - 2.4493" (62.1894 - 62.2122mm)
		No. 2, 3	2.4481" - 2.4490" (62.1817 - 62.2046mm)
		No. 4	2.4479" - 2.4488" (62.1767 - 62.1995mm)
	Taper	Production	.0002" (.0051mm) Max.
		Service	.001" (.025mm) Max.
	Out of Round	Production	.0002" (.0051mm) Max.
		Service	.001" (.025mm) Max.
Main Bearing Clearance	Production	No. 1	.0008" - .0020" (.0203 - .0508mm)
		No. 2, 3	.0011" - .0023" (.0279 - .0584mm)
		No. 4	.0017" - .0032" (.0432 - .0813mm)
	Service	No. 1	.001" - .0015" (.0254 - .0381mm)
		No. 2, 3	.001" - .0025" (.0254 - .0635mm)
		No. 4	.0025" - .0035" (.0635 - .0889mm)
Crankshaft End Play			.002" - .006" (.051 - .152mm)
Connecting Rod Journal	Diameter		2.0988" - 2.0998" (53.3095 - 53.3349mm)
	Taper	Production	.0005" (.0127mm) Max.
		Service	.001" (.025mm) Max.
	Out of Round	Production	.0005" (.0127mm) Max.
		Service	.001" (.025mm) Max.
Rod Bearing Clearance		Production	.0013" - .0035" (.0330 - .0889mm)
		Service	.003" (.0762mm) Max.
Rod Side Clearance			.008" - .014" (.152 - .356mm)
Crankshaft Runout			.0015" (.0381mm) Max.

Camshaft and Drive:

Lobe Lift ±.002" (.051mm)	Intake	.296" (7.518mm)
	Exhaust	.303" (7.696mm)
Journal Diameter		1.8682" - 1.8692" (47.452 - 47.478mm)
Journal Out-of-Round		.001" (.025mm) Max.
Camshaft End Play		.004" - .012" (.102 - .304mm)
Timing Chain Deflection		3/8" (9.5mm) From Taut Position [3/4" (19.1mm) Total]

Valve System:

Lifter Type			Hydraulic
Rocker Arm Ratio			1.50 to 1
Valve Lash (Intake & Exhaust)			3/4 Turn Down from Zero Lash
Face Angle (Intake & Exhaust)			45°
Seat Angle (Intake & Exhaust)			46°
Seat Runout (Intake & Exhaust)			.002" (.051mm) Max.
Seat Width	Intake		1/32" - 1/16" (.79 - 1.59mm)
	Exhaust		1/16" - 3/32" (1.59 - 2.38mm)
Stem Clearance	Production	Intake	.0010" - .0027" (.0254 - .0686mm)
		Exhaust	.0010" - .0027" (.0254 - .0686mm)
	Service	Intake	.0037" (.0940mm)
		Exhaust	.0047" (.1194mm)
Valve Spring	Free Length		2.03" (51.6mm)
	Pressure Lbs. @ In. (NOTE 1)	Closed @ 1.70" (43.16)	76 - 84 Lbs. (34.5 - 38.1kg)
		Open @ 1.25" (31.75mm)	194 - 206 Lbs. (88.1 - 93.5kg)
	Installed Height		1-19/32" (40.5mm)
Damper	Free Length		1.86" (47.24mm)
	Approximate No. of Coils		4

NOTE 1: Test spring pressure with damper removed.

Cylinder Head:

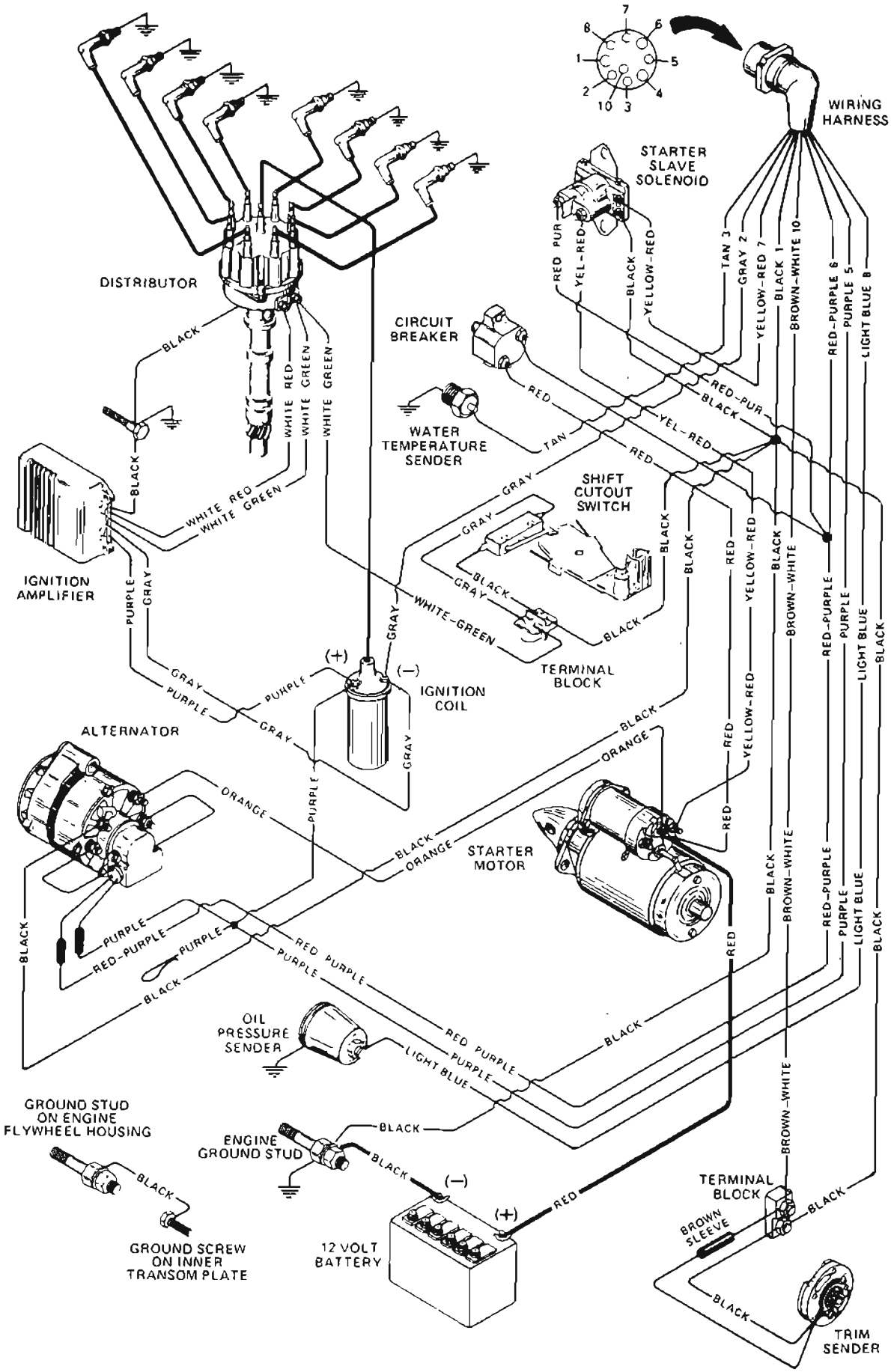
Gasket Surface Flatness	.003" (.076mm) in 6" (15.24cm) .007" (.178mm) Overall Maximum

Flywheel:

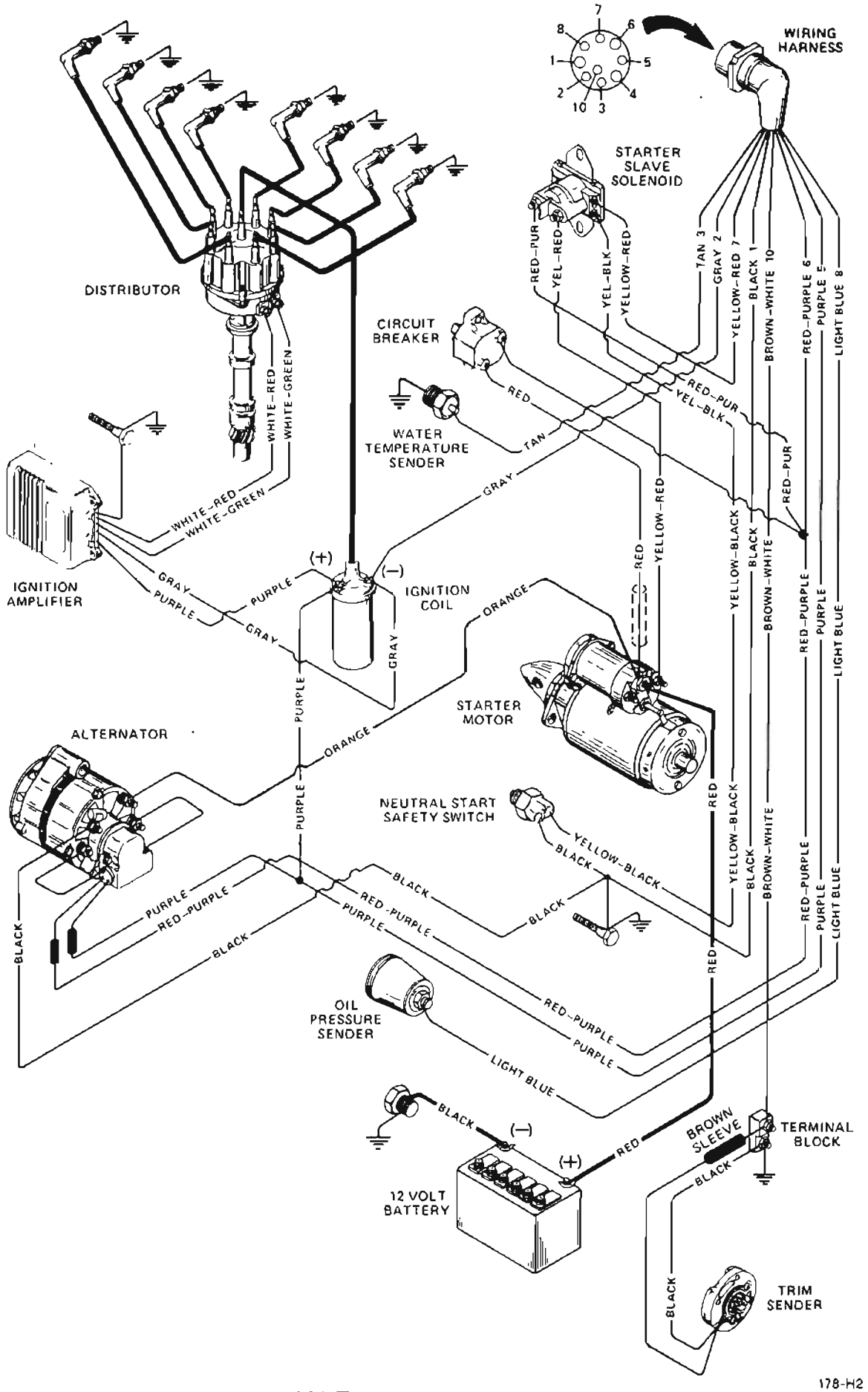
Runout	.008" (.203mm) Max.

E. TORQUE SPECIFICATIONS

Camshaft Sprocket	20 LB. FT. (27 N.m)
Conn. Rod Cap	45 LB. FT. (61 N.m)
Crankcase Front Cover	80 LB. IN. (9 N.m)
Cylinder Head	75 LB. FT. (102 N.m)
Distributor Clamp	20 LB. FT. (27 N.m)
Exhaust Manifold	20 LB. FT. (27 N.m)
Flywheel/Coupler	40 LB. FT. (54 N.m)
Flywheel Housing	30 LB. FT. (41 N.m)
Intake Manifold	40 LB. FT. (54 N.m)
Main Bearing Cap	85 LB. FT. (115 N.m)
Oil Filter	25 LB. FT. (34 N.m)
Oil Filter By-Pass Valve	80 LB. IN. (9 N.m)
Oil Pan to Crankcase (5/16-18)	165 LB. IN. (19 N.m)
Oil Pan to Crankcase (1/4-20)	80 LB. IN. (9 N.m)
Oil Pan Drain Plug	20 LB. FT. (27 N.m)
Oil Pump	65 LB. FT. (88 N.m)
Oil Pump Cover	80 LB. IN. (9 N.m)
Rocker Arm Cover	60 LB. IN. (7 N.m)
Spark Plug	180 LB. IN. (20 N.m)
Torsional Damper	70 LB. FT. (95 N.m)
Water Pump	30 LB. FT. (41 N.m)



F. MCM 300 TEMPEST MR WIRING DIAGRAM



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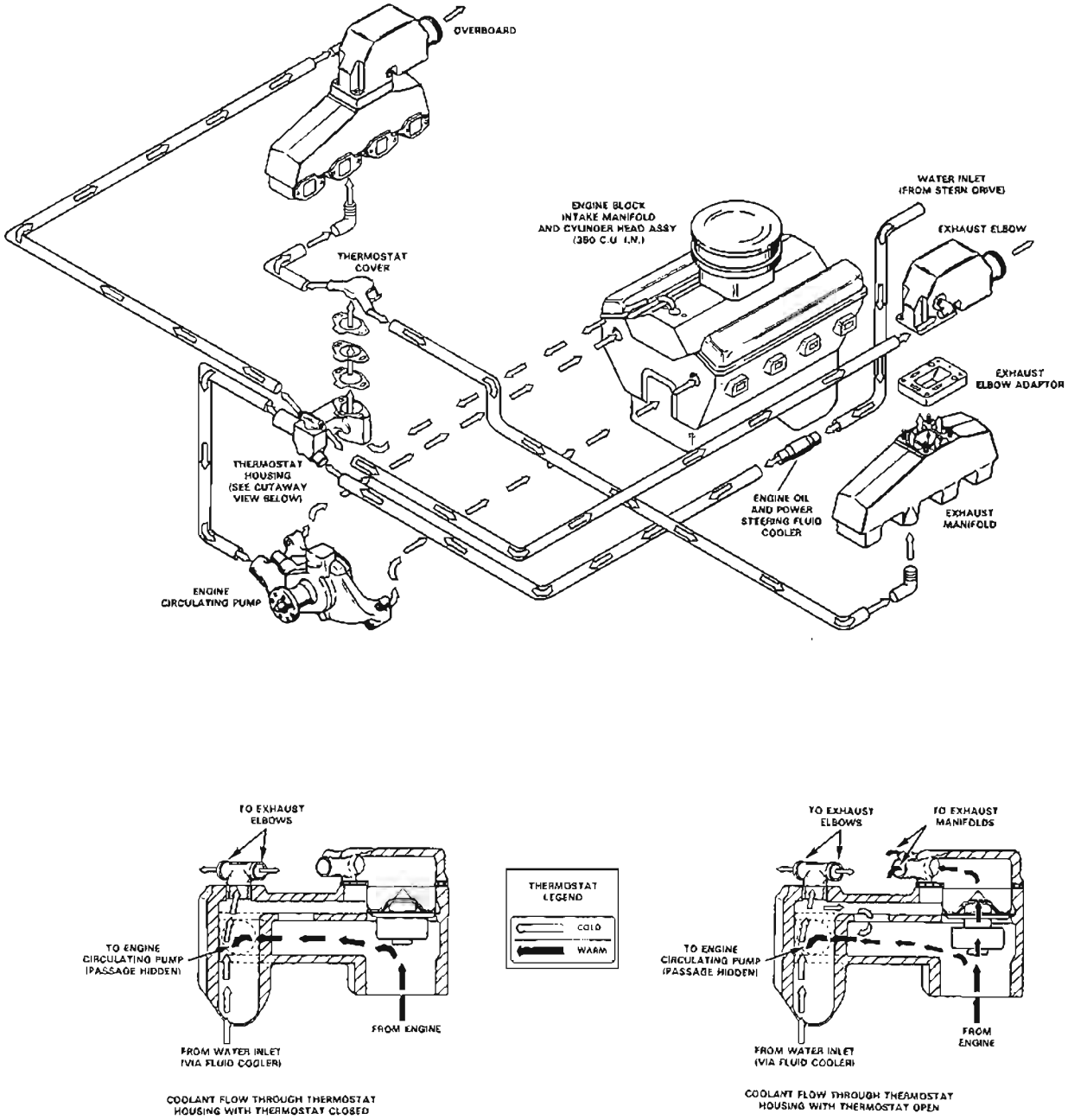
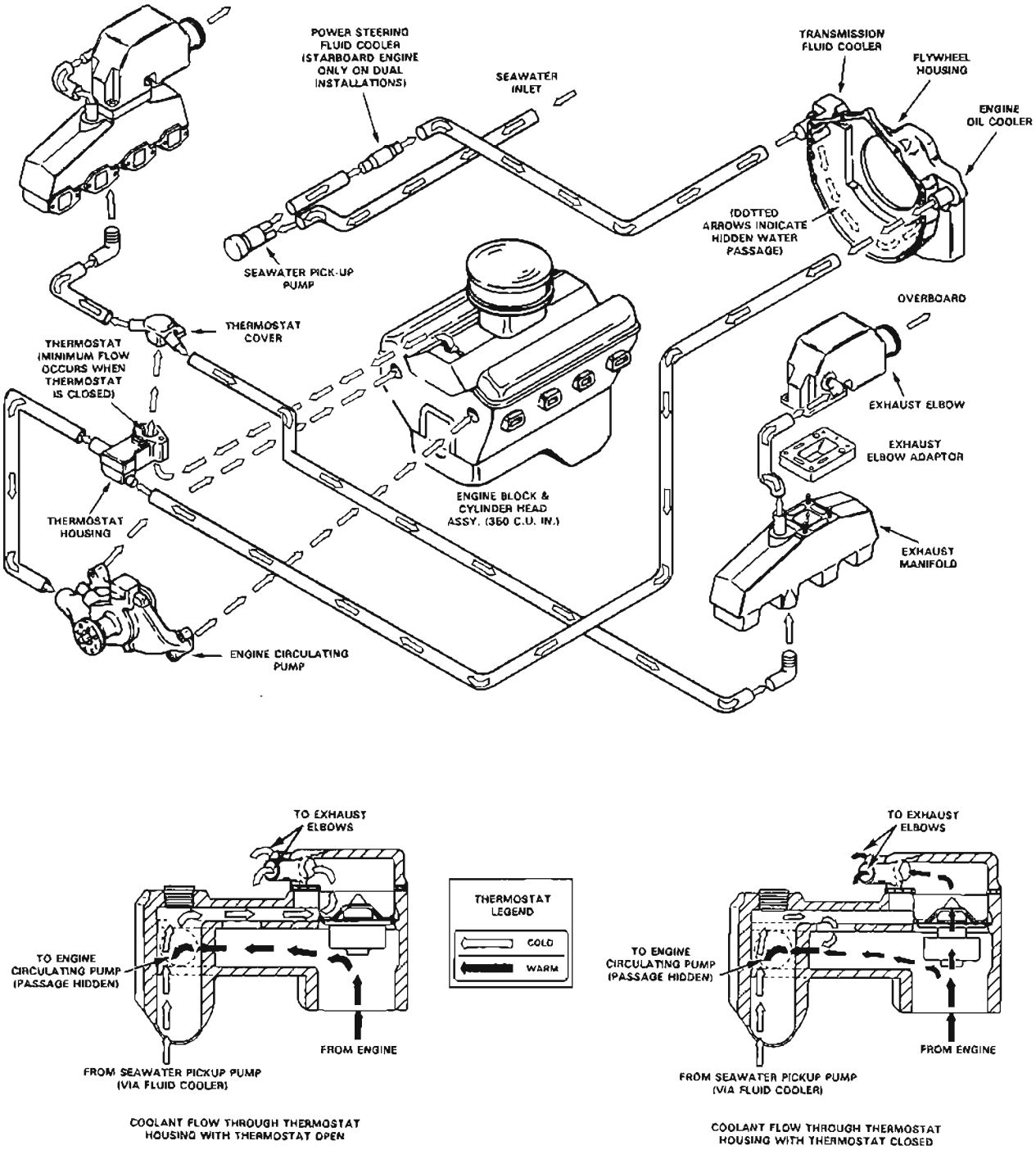
G. MCM 300 TEMPEST TRS WIRING DIAGRAM



H. MCM 300 TEMPEST MR WATER FLOW DIAGRAM



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I. MCM 300 TEMPEST TRS WATER FLOW DIAGRAM